

CLAIMS

1. A stud for use in panel form work for solid filled walls, the stud comprising:
a head adapted to be bonded and/or fastened to an inner face of an associated facing sheet;
- 5 a pair of spaced, opposed flanges formed integrally with and extending away from the head, each flange having two or more inwardly directed teeth;
wherein the passage of a suitably dimensioned spacer element into a recess formed by the flanges causes the inwardly directed teeth to engage the spacer element.
2. The stud of claim 1, wherein the teeth are barbed.
- 10 3. The stud of claim 1, wherein the flanges are resiliently deformable outwardly by passage of the spacer element to thereby engage the spacer element by compressive contact with the teeth.
4. The stud of claim 1 having a cross-sectional configuration that is substantially T-shaped.
- 15 5. The stud of claim 4, wherein the two or more inwardly directed teeth extend longitudinally along the corresponding flange.
6. The stud of claim 5 comprising three to ten teeth on each flange.
7. The stud of claim 1 further comprising an out-turned terminal lip on each of the flanges.
- 20 8. The stud of claim 1 formed as an extrusion from one of aluminium, polyethylene and polyvinyl chloride.
9. A building system for use in panel form work for solid filled walls, the building system comprising one or more pairs of the studs of claim 1 to claim 8 and one or more spacer elements adapted to interconnect a corresponding pair of studs.
- 25 10. The building system of claim 9, wherein the one or more spacer elements are formed from medium-density fibreboard, high-density fibreboard, fibre cement sheeting or aluminium sheeting.
11. The building system of claim 9, wherein the one or more spacer elements are formed from polyethylene or other suitable rigid synthetic material.
- 30 12. The building system of claim 11, wherein the one or more spacer elements are adapted for use in each of two different orientations to provide alternative spacings

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between a pair of aligned studs.

13. The building system of claim 12, wherein the one or more spacer elements are each formed with a rectangular box-like shape, having one or more tongues extending from each side, the tongues dimensioned to locate in the recess of the stud.

5 14. The building system of claim 13, wherein the one or more spacer elements have two spaced tongues on each side of the rectangular box.

15. The building system of claim 14 further including an aperture in the one or more spacer elements adapted to allow passage of one or both of reinforcing materials and utility services such as plumbing, electrical lines and communication lines.

10 16. The building system of claim 9, wherein the one or more spacer elements are formed in modular lengths of $m \times 100$ mm long where m is any suitable number.

17. The building system of claim 9 further comprising end elements having a channel to receive a bottom, side or top edge of a facing sheet.

15 18. The building system of claim 17, wherein each end element has flanges joined by a web to form a channel adapted to receive the edge of a facing sheet.

19. The building system of claim 18, wherein each end element further comprises an L-shaped flange forming a plate channel to receive outwardly extending flanges of a top or bottom plate member.

20 20. The building system of claim 17 further including top and/or bottom plate members.

21. The building system of claim 20, wherein the top and bottom plate members are formed as substantially planar members having outwardly extending flanges adapted to engage a corresponding plate channel of an edge element.

25 22. The building system of claim 21, wherein the top and bottom plate members are formed in modular lengths of $n \times 100$ mm wherein n is any suitable number.

23. The building system of claim 22, wherein the top and bottom plate members are formed from metal, such as aluminium, or a suitable synthetic polymeric material such as polyethylene.

30 24. The building system of claim 19, wherein the end elements further comprise an additional channel adjacent to and at right angles to the plate channel and adapted to receive an infill member.

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25. The building system of claim 24 further comprising one or more infill members formed as a substantially planar aluminium extrusion.
26. The building system of claim 25, wherein the one or more infill members have a weather fin extending longitudinally and outwardly from its planar surface.
- 5 27. The building system of claim 24, wherein an end element further comprises a longitudinal extension lip adapted to provide a shadow line when used at a bottom edge of an outer facing sheet of an upper storey panel.
28. The building system of claim 20 further comprising one or more joiner elements.
- 10 29. The building system of claim 28, wherein the one or more joiner elements are substantially L-shaped comprising a body and a flange with a terminal lip.
30. The building system of claim 29, wherein the one or more joiner elements are aluminium extrusions formed in modular lengths of approximately 100mm or multiples thereof.
- 15 31. The building system of claim 28 further comprising an internal corner for connecting two angled adjacent inner facing sheets.
32. The building system of claim 31, wherein the internal corner is substantially W-shaped with webs at around 90° angle and terminated by flanges having an associated lip.
- 20 33. The building system of claim 31 further comprising an external corner adapted to join two angled outer facing sheets.
34. The building system of claim 33, wherein the external member has webs at around 89°, each web terminated by an inward flange.
35. The building system of claim 33 further comprising one or more edge form rebates configured with primary flanges connected by a first web to form a channel adapted to receive an edge of a facing sheet, a secondary flange perpendicular to the first web and supporting a second web having a lip.
- 25 36. A building panel for use in the construction of concrete filled walls and the like, the building panel including spaced apart first and second facing sheets and at least two pairs of studs according to any one of claims 1 to 8, one stud of each pair being fixed to an inner face of one of the first and second facing sheets and aligned with the other stud
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of the pair fixed to an inner face of the other of the first and second facing sheets and at least one spacer element interconnecting the one and other studs of each pair and arranged so that voids in the panel are adapted to be filled with concrete and/or structural building elements.

- 5 37. The building panel of claim 36, wherein the studs are provided at modular distances of n or $2n$, wherein n is around 82mm.
38. The building panel of claim 36, wherein the studs are of modular length of 100mm or multiples thereof.
39. The building panel of claim 36, wherein the studs are terminated at 0mm to
10 100mm from the bottom of the facing sheet.
40. The building panel of claim 36, wherein the studs are terminated at 50mm to 300mm and preferably 200mm to 300mm from the top of the facing sheet.
41. The building panel of claim 36, wherein the facing sheets are formed of fire-resistant or fire-retardant materials such as MDF, HDF, fibre cement sheeting,
15 aluminium sheeting and plastic sheeting.
42. The building panel of claim 41, wherein the one or more spacer elements are formed from the facing sheet material.
43. The building panel of claim 41, wherein the one or more spacer elements are formed from polyethylene or other suitable polymeric material.
- 20 44. The building panel of claim 43, wherein the one or more spacer elements are adapted for use in each of two different orientations to provide alternative spacings between a pair of aligned studs.
45. The building panel of claim 36 further comprising end elements having a channel to receive a bottom or top edge of a facing sheet and located along the top and
25 bottom of the panels to enable the panel to be fixed to panels or other building structures above and below the building panel.
46. The building panel of claim 45 further comprising a pair of end elements provided along the side of the panel for fixing to a similar panel at a junction.
47. The building panel of claim 46 further comprising joiner elements to
30 interconnect adjacent studs of adjacent panels together.
48. The building panel of claim 45 further comprising a top plate or bottom

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plate interconnecting the end elements of the top and bottom of the panel, respectively, to restrain the facing sheets from bowing or deforming.

49. The building panel of claim 48, wherein the top plate and/or bottom plate are formed as modular spaced plate members.

5 50. The building panel of 45 further comprising internal and external corners for interconnection of the panel to an adjacent panel at a corner.

51. The building panel of claim 45 further comprising an infill member positioned between end elements lining a recess in the panel.

52. The building panel of claim 51, wherein the end elements and
10 corresponding infill members line a window aperture.

53. The building panel of claim 52, wherein one or more infill members have a weather fin.

54. The building panel of claim 36 further comprising concrete poured into the void.

15 55. A building structure comprising two or more panels according to claim 36 and further comprising a longitudinal extension lip forming a shadow line between an upper and lower panel.

56. A building structure comprising two or more panels according to claim 36 and further comprising a construction joint between two adjacent panels.

20 57. A building structure comprising two or more panels according to claim 36 with at least two panels joined at a corner and including an internal corner and external corner.

58. The building structure of claim 57, wherein longitudinal or angled reinforcing members pass between the corners.

25 59. The building panel of claim 36 further comprising vertical and/or horizontal reinforcing elements.